What is claimed:

1.   A time slot synchronizer, comprising:

a sampler configured to:

successively sample a baseband signal comprising a plurality of frames, each frame comprising a plurality of symbols;

divide each symbol into a plurality of sample bins;

generate a first sample group from a first frame by sampling each symbol in the first frame in a first and second sample bin; and

generate a second sample group from a second frame by sampling each symbol in the second frame in a third and fourth sample bin, the third and fourth sample bins being shifted a certain number of sample bins relative to the first and second sample bins, respectively,

a correlator configured to correlate the first and second groups of samples with a stored sync word in order to generate a final correlation estimate, and

a comparator configured to compare the final correlation estimate to a correlation threshold.

2.   The synchronizer of claim 1, wherein the total number of sample bins is eight.

3.   The synchronizer of claim 1, wherein the third and fourth sample bins are shifted two sample bins relative to the first and second sample bins, respectively.

4.   The synchronizer of claim 1, wherein each frame comprises 486 symbols.

5.   The synchronizer of claim 1, wherein each frame is divided into a plurality of time slots, there being a sync word at the beginning of each time slot,

and wherein correlation with the stored sync word only occurs for the samples generated from the sync words at the beginning of each time slot.

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      6.   The synchronizer of claim 5, wherein each sync word comprises 14 symbols.

      7.   The synchronizer of claim 5, wherein each frame comprises six time

10   slots.

      8.   The synchronizer of claim 1, wherein the sampler is configured to generate a first sample group series from a first plurality of frames that includes the first frame by sampling each frame in the first plurality of frames using the first and

15   second sample bins, and wherein the correlator is configured to generate a first correlation estimate comprising the average correlation estimate for each frame in the first plurality of frames, and wherein the comparator is configured to use the first correlation estimate to generate the final correlation estimate.

      9.   The synchronizer of claim 1, wherein the sampler is configured to

20   generate a second sample group series from a second plurality of frames that includes the second frame by sampling each frame in the second plurality of frames using the third and fourth sample bins, and wherein the correlator is configured to generate a second correlation estimate comprising the average correlation estimate

25   for each frame in the second plurality of frames, and wherein the comparator is configured to use the second correlation estimate to generate the final correlation estimate.

      10.   A mobile station, comprising:

30   a receiver for receiving a signal;

a demodulator coupled to the receiver, the demodulator configured to take

the signal and to generate a baseband signal comprising a plurality of frames, each

frame comprising a plurality of symbols; and

a sampler configured to successively sample the baseband signal by:

dividing each symbol into a plurality of sample bins;

generating a first sample group from a first frame by sampling each symbol

in the first frame in a first and second sample bin; and

generating a second sample group from a second frame by sampling each

symbol in the second frame in a third and fourth sample bin, the third and fourth

sample bins being shifted a certain number of sample bins relative to the first and

second sample bins, respectively,

a correlator configured to correlate the first and second groups of samples

with a stored sync word in order to generate a final correlation estimate, and

a comparator for comparing the final correlation estimate to a correlation

threshold.

11.   The mobile station of claim 10, wherein each frame is divided into a

plurality of time slots, there being a sync word at the beginning of each time slot,

and wherein correlation with the stored sync word only occurs for the samples

generated from the sync words at the beginning of each time slot.

12.   The mobile station of claim 10, wherein the sampler is configured to

generate a first sample group series from a first plurality of frames that includes the

first frame by sampling each frame in the first plurality of frames using the first and

second sample bins, and wherein the correlator is configured to generate a first

correlation estimate comprising the average correlation estimate for each frame in

the first plurality of frames, and wherein the comparator is configured to use the first

correlation estimate to generate the final correlation estimate.

13. The synchronizer of claim 10, wherein the sampler is configured to generate a second sample group series from a second plurality of frames that includes the second frame by sampling each frame in the second plurality of frames using the third and fourth sample bins, and wherein the correlator is configured to generate a second correlation estimate comprising the average correlation estimate for each frame in the second plurality of frames, and wherein the comparator is configured to use the second correlation estimate to generate the final correlation estimate.

14. The receiver of claim 10, configured to look for a different signal when the correlation estimate does not exceed the correlation threshold.

15. A method for time slot synchronization using a sampler configured to successively sample a baseband signal comprising a plurality of frames, each frame comprising a plurality of symbols, the method comprising:

dividing each symbol into a plurality of sample bins;

generating a first sample group from a first frame by sampling each symbol in the first frame in a first and second sample bin;

generating a second sample group from a second frame by sampling each symbol in the second frame in a third and fourth sample bin, the third and fourth sample bins being shifted a certain number of sample bins relative to the first and second sample bins, respectively;

correlating the first and second groups of samples with a stored sync word in order to generate a final correlation estimate; and

comparing the correlation estimate to a final correlation threshold.

16. The method of claim 15, wherein each frame is divided into a plurality of time slots, there being a sync word at the beginning of each time slot, and wherein correlation with the stored sync word only occurs for the samples generated from the sync words at the beginning of each time slot.

17.   The method of claim 15, comprising:

generating a first sample group series from a first plurality of frames that includes the first frame by sampling each frame in the first plurality of frames using the first and second sample bins;

generating a first correlation estimate comprising the average correlation estimate for each frame in the first plurality of frames; and

using the first correlation estimate to generate the final correlation estimate.

18.   The method of claim 13, comprising:

generating a second sample group series from a second plurality of frames that includes the second frame by sampling each frame in the second plurality of frames using the third and fourth sample bins;

generating a second correlation estimate comprising the average correlation estimate for each frame in the second plurality of frames; and

using the second correlation estimate to generate the final correlation estimate.